

**UNITED STATES DISTRICT COURT  
EASTERN DISTRICT OF PENNSYLVANIA (Philadelphia)**

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DAWN KENNEDY	:	
	:	
Plaintiff,	:	NO. 20-cv-00395-KSM
	:	
v.	:	
	:	
CITY OF PHILADELPHIA	:	<b>JURY TRIAL DEMANDED</b>
	:	
Defendant.	:	

**PLAINTIFF'S STATEMENT OF FACTS**

1. It is undisputed that Plaintiff worked for the Philadelphia Police Department since October 15, 2001. Plaintiff is of African American ethnicity. (Defendant's SOF, para. 1).
2. It is undisputed that in March 2019, Plaintiff underwent a routine drug test for the PPD. The examiner cut hair from the back of Plaintiff's neck with scissors to use as the sample for the drug test. (Defendant's SOF, para. 2-5).
3. It is undisputed that Plaintiff also gave a urine sample for her drug test. (Defendant's SOF, para. 4).
4. On or about March 27, 2019, Internal Affairs arrived at Plaintiff's residence, took her weapon and notified her that her hair strand drug test came back positive for THC. Her urine test came back negative for any drugs. Plaintiff was stunned as she had never used marijuana or tested positive for marijuana use in her 17 years on the police force. (Exh. A, Plaintiff's dep., 11:15).
5. Plaintiff was advised by Internal Affairs that she could be pay for a retest by the city doctor the very next day but that even if the test was negative, the results would not negate the first test. This news was disparaging to Plaintiff as she knew that she did not use marijuana. Id. at 86:13.

6. Plaintiff, eager to show that she did not use marijuana, decided to go for an independent drug test eight days after her first test. The technician took a large chunk of hair from the middle of Plaintiff's head at the root. (Exh. B, Kidwell Report, pg. 12-13) (Exh. D – Dr. Kidwell C.V.)

7. It is undisputed Plaintiff's second drug test was negative for THC in both her hair and her urine. (Defendant's SOF, para. 8; 21).

8. Despite the negative retest, Plaintiff could either be terminated immediately and lose her pension, or "retire". (Exh. A, Plaintiff's dep., 63:16).

9. Plaintiff had no choice and was forced to officially retire on or about March 29, 2019, in order to save her pension. Id.

10. Plaintiff's expert scientist, David A. Kidwell, Ph.D., concluded *inter alia* that the City's hair testing has a discriminatory impact on African Americans, and that Plaintiff suffered a false positive because of her African hair type and ethnic hair care products.

Dr. Kidwell specific conclusions include:

- African Americans are disproportionately impacted by false accusations of drug use (false positive from testing) when hair testing for drugs is employed. Genetics and cultural differences in how hair is cosmetically treated (imposed by those genetics) provides especially African Americans with hair that is more susceptible to contamination from the environment and thereby false accusations of drug use from mere drug exposure. (Exh. B, Kidwell Report, pg. 15)
- Because of Officer Kennedy's African hair type and cosmetic preferences, it is reasonable scientific conclusion that her positive hair test was a false positive. (Exh. B, pg. 15)
- Officer Kennedy was exposed to sources of THC in her job. Additionally, Officer Kennedy treated her hair with oils that would allow concentration and binding of THC from the environment and that exposure is greatly enhanced by the hair treatments that African Americans use. Id. at pg. 15
- The laboratory decontamination procedure is woefully inadequate. Id.

- The actual THC level in Officer Kennedy's hair was not measured and the ratio of THC to THC-COOH could not be determined. Id.
- No consensus exists in the scientific community as to what a positive hair test means - Is it use or contamination? Nor what levels constitute a positive result. Id.
- Officer Kennedy's hair was not cut to a defined length as others samples. The time frame based on the length of her hair sample was 2-7x longer than other subjects. Longer time frames allow more time for exposure and more time for "metabolites" to form after the exposure. Id.
- THC and its metabolites do not bind well to hair and are at 2000x lower levels than other drugs. This makes their analysis challenging. To generate any positive results from known marijuana users, the analytical technology needs to be stretched to its limits. Id. at pg. 16
- The laboratory confirmation analysis had a number of substantial defects and unknowns that calls into question their quantitation of THC-COOH. Id.
- An independent analysis of another sample of hair taken a few days later tested negative, and careful examination of the raw data does not indicate the presence of substantial amounts of THC or related materials. THC metabolites have been shown to be stable to many removal techniques. i.e. if Officer Kennedy had tried to generate a false negative on a second sample by cosmetic methods, she would have likely failed. Id.
- Officer Kennedy was randomly selected for drug testing and thus had no opportunity to adulterate her urine or hair specimens. Id.
- A urine specimen for Officer Kennedy taken at the same time tested negative and careful examination of the raw data does not indicate even the hint of the presence of THC metabolites. Additionally, the sample appeared normal with no physical dilution (i.e. no attempt to hide marijuana use[]). Id.

Dr. Kidwell's supplemental report additionally concluded, *inter alia*:

- Statistical analysis showed that hair testing by the City had a disparate impact on African Americans. Officer Kennedy is a select member of that group who was randomly chosen for hair testing and was positive. This random group had an odds ratio of 14.8 (i.e. 14.8 times more black individuals (in proportion to their population) were selected than white individuals), which was statistically significant at the 95% CI. (Exh. C, Kidwell Supp. Report, pg. 9)
- [A] number of factors such as hair color, hair texture, and cosmetic treatments all closely linked to race and culture that make African-Americans and

especially African-American females more susceptible to being falsely accused of drug use. Id. at pg 1.

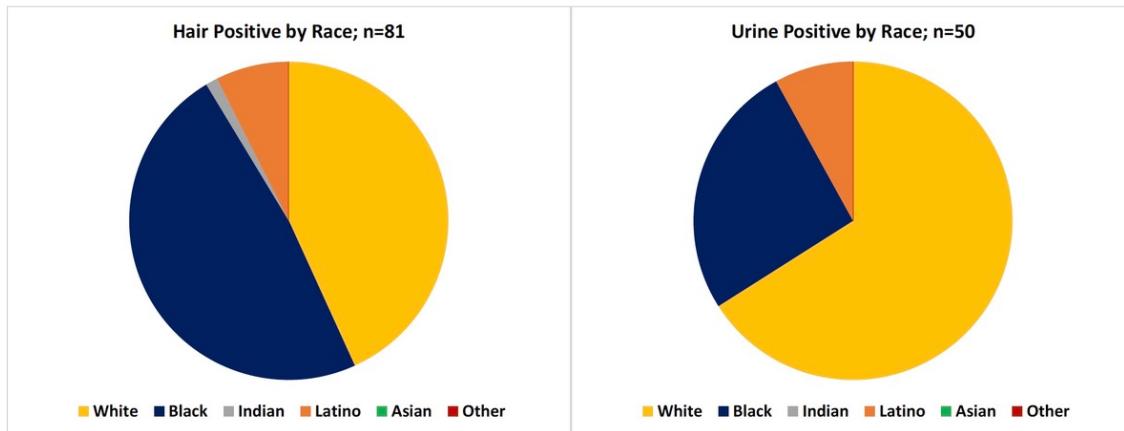
- Also, testing of too long a hair sample subjected Officer Kennedy to different treatment from that received by other individuals similarly situated. Id.

11. Dr. Kidwell statistically shows the City's hair tests disproportionately impact African Americans compared to urine tests:

In my initial expert report I delved into detail how hair testing can be racially biased. I need not repeat those details here. Suffice to say that it encompasses a number of factors such as hair color, hair texture, and cosmetic treatments all closely linked to race and culture that make African-Americans and especially African-American females more susceptible to being falsely accused of drug use. (Exh. C, Kidwell Supp. Report, pg. 1)

Through a subpoena, I eventually received part of the City's data set that clearly demonstrates this bias in a statistically significant manner. Id. (City Bates Numbers 1031 – City 1075 – produced by the City in response to Plaintiff's motion to compel (Docket No. 30)

Note that the urine proportions very closely mirror the general population in Figure 1a whereas the hair positive tests are skewed to the Black individuals.



Dr. Kidwell further concludes:

**Statistical analysis showed that hair testing by the City had a disparate impact on African Americans.** Officer Kennedy is a select member of that group who was randomly chosen for hair testing and was positive. This random group had an odds ratio of 14.8 (i.e. 14.8 times more black individuals (in proportion to their population) were selected than white individuals), which was statistically significant at the 95% CI. Id. at pg. 10

12. Dr. Kidwell's explains African hair is more susceptible to false positives due to genetics and ethnic hair care products:

It is well known that ethnic hair care products are often applied to African hair especially after chemical or heat straightening to keep the hair from curling due to moisture. This is most typically done by African-American females. These ethnic hair care products are basically oil or oil-glycerol mixtures. We have shown that in the case of the aminecontaining drugs, these hair care products can enhance the uptake of drugs from the environment 500 fold. Another aspect of African female hair care is that it is not washed frequently due to cosmetic reasons (i.e. you would need to straighten it again after washing or put back in hair extensions – both time consuming processes). Additionally, African hair tends to be drier than Caucasian hair and need not be washed as frequently as well as needing oil to keep it in place.

Genetics also plays a role as African hair is typically curly. If the popular culture values straight hair, then commercial businesses provide the means to achieve that goal in providing hair care products and extensions. Straightening products strip the cuticle (Figure 1a) from the hair and make it more porous to the environment (Figure 1b). Thus, a combination of genetics and culture of perceived beauty make African hair more susceptible to influx of drugs from the environment.

Besides allowing ready entry, ethnic hair care products can enhance the uptake from the environment. THC is well known to bind to oils. It is reasonable to assume (like shown for cocaine and amphetamines) that ethnic hair care products will concentrate THC from the environment and thereby basically apply a solution of THC to the hair until the hair is washed. Because of hygiene and application of oils (as mentioned above) any solution of THC remains on the hair for a lengthy time compared to other groups. Time and higher concentrations increase the diffusion of THC into the hair. Additionally, the oil treatment provides the liquid vehicle that also facilitates this transfer. Of course, any individual could straighten their hair, apply oils, and wash it infrequently. It is just more culturally relevant to African-American females.

In summary, different hair "types" have different rates of contamination from the environment. Cosmetically treated hair, because of damage and residual chemicals, transferred drugs more readily than untreated hair. To the extent that African Americans more frequently treat their hair (for genetic and cultural reasons), they as a group would be more susceptible to environmental contamination and the resulting false positives and false accusations resulting from that contamination. (Exh. B, Kidwell Report, pg. 6-7)

13. Omega Laboratories' hair test was inconsistent with Plaintiff's other negative hair and urine tests taken during the same time period. When Plaintiff's positive Omega hair test is

compared to Plaintiff's negative United States Drug Testing Laboratories (USDTL) hair test, Dr. Kidwell was able to show that Omega's test was compromised by Plaintiff's ethnic hair care treatment.

Dr. Kidwell explains:

[A]fter being informed of her positive test, Officer Kennedy had an independent analysis of another sample of hair taken eight days later and sent to United States Drug Testing Laboratories (USDTL). According to the report (City Bates 0979) the sample tested negative in the screening test at a sensitivity identical to that used by Omega. As the initial test was negative, the sample did not go onto confirmation. I requested the full litigation package to allow careful examination of the raw data. If there is any THC reactive materials present they are at least half of the cutoff level of 1 pg/mg of hair. What could account for this discrepancy between USDTL negative and Omega's positive?

USDTL indicates in their collection video for hair that the collector should cut the hair to a length of 1.5". Shorter hair allows for less possibility of environmental contamination. It is my understanding that the collection process followed the video – decontamination, gloves, and cutting hair to a fixed length. USDTL decontaminates the hair before they perform the screening test. Their decontamination likely removes only superficial contamination. It would also remove hair treatment products such as oils that would be in this superficial contamination and prevent them from interfering with the initial ELISA screening test generating a false positive result.

**Importantly, Officer Kennedy has testified that she treats the nape hair (which was tested by Omega) with "Wild Growth" (Kennedy 35:20) whereas she treats the top of her hair (which was test by USDTL) with less oil and a different brand "Cactus Oil" (Kennedy 66:23).** As ethnic hair care products have been shown to absorb nitrogencontaining drugs from the environment and reasonably be expected to do the same for THC (as discussed above), this puts the Omega hair sample at a greater risk of contamination and false positives because (1) more oil is present and (2) the oil was not removed by Omega before testing the hair.

(Exh. B, Kidwell Report, pg. 12-13)

Dr. Kidwell further explains: "because Omega does not decontaminate the hair, hair that has been treated with oils (as was Officer Kennedy's) hair can confuse the immunoassay and can produce false positives."

14. Regarding Plaintiff's negative urine test, Dr. Kidwell explains:

A urine specimen for Officer Kennedy taken at the same time by the Philadelphia Police Department tested negative. Like the hair sample, I requested the full litigation package from Drug Scan (Specimen ID: 510026042, collected 3-20-19). Careful examination of the raw data does not indicate even the hint of THC metabolites at the lowest levels of testing. Furthermore, an additional urine sample collected on the initiative of Officer Kennedy was tested by LabCorp and found negative. I also requested the full litigation package for this sample but only received a summary that basically indicated that the sample was normal and negative. All the samples (hair and urine) appeared normal with no hint of evasion of the drug test.

**The easiest way to reconcile these disparate analyses is to invoke passive exposure and thereby a false positive in the Omega hair sample.**

(Exh. B, Kidwell Report, pg. 14)

In other words, Dr. Kidwell concludes Plaintiff did not intentionally use marijuana, but instead she was passively exposed to marijuana in her job.

This is consistent with Plaintiff's testimony that she was constantly around marijuana at work:

Q. Do you recall any time in the maybe, like, three months prior being -- coming into contact with a suspect or anyone that was smoking marijuana?

A. Oh, well, yes. Practically every night when I came to work, you know, that was -- you know, that's part of our job. We arrest people that are either selling it or smoking it.

And so every night, I was pretty much exposed to marijuana regardless of whether I was working in the Operations Room because that's where -- when the officers would arrest someone, they would bring them in. Marijuana would -- they would leave it out on the counter while they were filling out paperwork.

So, it was always -- it was always present. Like our district was the district where the 14<sup>th</sup> District and the 39th District would bring their prisoners. So, we were always a high traffic district. So we housed -- even the 5th District, we housed all three of the other districts, their prisoners and juveniles and all of that.

So, I was constantly around marijuana at work. (Exh. A, Plaintiff's Dep., 44:22).

15. Dr. Kidwell specifically found that Omega's failure to cut Plaintiff's hair according to protocols was a form of purposeful discrimination because "African-American female hair is very curly and difficult and time consuming to align and cut to length if it is not cut during the collection process, as this sample was not."

Among the reasons for Omega's test being inaccurate, Dr. Kidwell explained, was the length of Plaintiff's hair sample:

Officer Kennedy's hair was tested at too long of length. The laboratory had protocols to test hair cut to 1.5". That was not done in her case and thus subjected her sample to, in my opinion, different treatment from that received by other individuals similarly situated. Dr. Kadehjian need not look any further than the Omega litigation package that shows that Officer Kennedy's hair was the longest tested in that batch (where length was provided, page 12 of 82, for his reference). One can speculate as to why this was the case. I will not do that here but **this is a form of purposeful discrimination in not following protocol. In my experience, African-American female hair is very curly and difficult and time consuming to align and cut to length if it is not cut during the collection process, as this sample was not. Why the Omega collection process did not have a requirement to cut the hair to a defined length while on the head is unclear. I do note that USDTL, the laboratory where Officer Kennedy sent a second sample, did have the requirement that the collection facility cut the hair to length and it appeared to have been met in the instant case.**

(Exh. C, Kidwell Supplemental Report, pg. 7-8)

16. Plaintiff's Omega Laboratories hair test was further compromised.

Dr. Kidwell explains that analysis of THC and THC-COOH in hair is very difficult and care must be taken by the laboratory to avoid false positives from contamination or incorrect procedures. (Exh. B, Kidwell Report, pg. 10)

Dr. Kidwell's found numerous problems with Plaintiff's hair sample from Omega Laboratories, including:

- Incorrect sample length
- No decontamination in initial screening test
- Insufficient precision in sample weights

- Insufficient precision in the initial test
- Lack of decontamination procedure
- Inaccurate internal standard additions
- Use of conventional standard methods linear line
- Understanding of the confirmation procedure  
(Exh. B, Kidwell Report, pg. 9-12)

17. Omega's test is not drug specific, which violates the City's own directives.

Dr. Kidwell notes that the Philadelphia City Directive 6.5 (City 303) states: "To ensure optimum accuracy, the tests will be drug-specific. The drug abuse screening test will consist of two tests: ..."

The ELISA tests used in the initial screening by Omega clearly does not meet the requirement of being drug specific. (Exh. B, Kidwell Report, pg. 11)

Dr. Kidwell even concluded that Omega "**does not measure the THC content of hair.**"

Id.

18. Dr. Kidwell additionally outlines alternatives to the use of hair testing in a drug-deterrent program:

In a safety-sensitive job drug use can be a concern, and effective drug testing deters drug use. The Philadelphia Police Department employs drug testing on a random basis with both hair and urine as the test matrices. Random testing is more effective than scheduled testing as employed by other police departments and they should be commended for that part of their approach. Some drugs are more readily detected by hair testing than urinalysis. As used by the Philadelphia Police Department, hair testing could identify individuals who have used drugs and those that have been merely exposed to drugs. One cannot determine drug use from a single test. For example with cocaine, it has been shown that FBI agents have cocaine positive hair even after decontamination. It is interesting that the Philadelphia Police Department takes both urine and hair, with hair being randomly tested in about 10% of the total samples and urine tested with all the samples. Either sample being positive is grounds for dismissal.

The Philadelphia Police Department could use a more enlightened approach to drug testing to ensure a drug-free workforce. For example, they should take NO adverse action based solely on a hair test as hair measures exposure to drugs. The hair test would only be used to classify individuals into those whose job, contacts, hair type, and cosmetic practices, make them suitable for testing by hair analysis. If an

individual was detected to be positive OR exposed to drugs by a hair test, then that individual would be placed in a frequent, random urinalysis program. Only if that individual were positive by urinalysis, would adverse action be taken. As the Philadelphia Police Department already uses urinalysis as their major drug testing matrix, a few extra samples should not be a financial or logistic burden, especially when compared to replacing a trained police officer.

(Exh. B, Kidwell Report, pg. 14)

19. Defendant's argument that the Omega hair test confirms the presence of marijuana and is predictive of drug use is incorrect. Dr. Kidwell does not concede this point. Dr. Kidwell explains that the presence of THC-COOH (THC carboxylic acid) does not automatically prove **use** from exposure:

The metabolism and origin of most drugs of abuse in hair have been well studied. THC has not. It is generally believed that THC-COOH is considered to be a definitive metabolite and its presence demonstrates use of marijuana. **But is THC-COOH a definitive metabolite of THC? Not really. THC is actually an unstable compound and decomposes on exposure to oxygen and light into a wide variety of uncharacterized materials.** Interestingly, the major human metabolites of THC (and the ones we find in hair) are all oxidation products at an allylic position caused by removing hydrogen atoms. Allylic hydrogens are especially prone to non-specific oxidation from just exposure to oxygen in the air, perhaps catalyzed by light.<sup>51</sup> In the chemical synthesis of THC-COOH for the high-yield preparation of standards, oxidation can form THCCOOH.

Non-specific production of THC-COOH from THC has been shown to occur over a decade ago. From unpublished work by Associated Pathologists Laboratories, they quantitated THC and THC-COOH in hair that was stored one year. Figure 3 clearly shows that THC is unstable in hair upon storage with the majority of samples showing a profound decrease in THC over a one year storage. **What is more telling is THCCOOH, the “metabolite” increases over time in the majority of the samples. Clearly this is not due to human metabolism as these are cut hair samples stored in a laboratory.** The logical conclusion is that a small fraction of THC is degrading to the specific compound THC-COOH (being tested) and the rest decomposing to unknown materials. There is some speculation that melanin may play a role in the degradation of THC as melanin is known to activate oxygen in a manner similar to Fenton oxidations.

Officer Kennedy's hair was only tested for the presence of THC-COOH. Other materials must be present as the amounts indicated by the ELISA (the initial, general test) and GC/MS/MS (the specific confirmation test) do not agree. **Knowing both materials may be helpful in distinguishing use from exposure...**

(Exh. B, Kidwell Report, pg. 8)

... One of the major concerns of hair testing is what does it measure? – use or mere exposure. Effective decontamination procedures help distinguish the use vs. exposure if laboratories would only test their test. Omega's decontamination is woefully inadequate in that they rinse the hair for 5 seconds in methanol. If I assume that this is a misprint and it actually means 5 minutes, I would still consider that amount of decontamination inadequate.

Id. at 11.

Dr. Kidwell devotes a significant portion of his reports on the inadequacies of Omega's testing – and specifically Omega's deficiencies in measuring THC-COOH (THC carboxylic acid), which undermines the ability to determine use versus exposure.

20. Plaintiff filed an EEOC in June of 2019 and received her right to sue letter. (Exh. A).

21. The City of Philadelphia's Medical Director of Employee Medical Services, Dr. George Hayes was deposed in this case. Dr. Hayes has worked for the City for 35 years. (Exh. E, Dr. Hayes dep., 7:9)

22. Dr. Hayes testified that he has been independently aware of the possibility of a racial disparity from hair drug testing for about 15 years. Dr. Hayes testified:

Q. Have you ever heard of that concept before? (The concept of racial disparity in hair drug testing)

A. Yes.

Q. When did you hear about that concept?

A. It had to be at least I would say 15 years ago.

Q. And how did you learn about that?

A. Actually, there have been some studies done that point to the issue of hair being something that may give you some partial or some different results in different hair, colors as well as hair thickness. So they've done studies historically.

Id. at 10:3

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